Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application:.

Listing of Claims:

1. (Previously presented) An isolated DNA comprising:

(a) a nucleic acid sequence that (i) encodes a polypeptide that enhances spreading of a macrophage or a monocyte and (ii) hybridizes to the complement of SEQ ID NO:13 under the following conditions: hybridization in 6 X SSC at 30°C, followed by one or more washes in 0.2 X SSC and 0.1% sodium dodecyl sulfate (SDS) at 50°C to 65°C; or

(b) the complement of the nucleic acid sequence.

2. (Previously presented) An isolated DNA comprising a nucleic acid sequence that encodes an amino acid sequence comprising SEQ ID NO:12.

3. (Previously presented) An isolated DNA comprising a nucleic acid sequence consisting of SEQ ID NO:13.

4. – 5. (Cancelled)

6. (Currently amended) An isolated nucleic acid comprising a sequence encoding a fusion protein comprising: ~~a first domain and a second domain, wherein the amino acid sequence of the first domain comprises~~

(a) SEQ ID NO:12 or ~~a functional~~ an antigenic fragment thereof; and ~~wherein the second domain comprises~~

(b) a heterologous sequence.

7. – 9. (Cancelled)

10. (Currently amended) ~~The method of claim 8, wherein the delivery comprises administering to the mammal a nucleic acid encoding the agent~~. A method of treating a mammal in need of an enhanced immune response, the method comprising delivering to a tissue of the mammal that contains T cells and macrophages or monocytes, an agent selected from the group consisting of:

(a) an isolated attractin polypeptide comprising SEQ ID NO:12;

(b) an antigenic fragment of the attractin polypeptide; and

(c) the polypeptide or the antigenic fragment, but with at least one conservative amino acid substitution,

wherein the delivery comprises administering to the mammal a nucleic acid encoding the agent.

11. (Currently amended) The method of claim [[8]] 10, wherein the mammal is a human.

12. (Withdrawn) The method of claim 11, wherein the human is suspected of being immunodeficient.

13. (Withdrawn) The method of claim 11, wherein the human is suspected of having cancer.

14. (Withdrawn) The method of claim 13, wherein the method is performed before, during, or after chemotherapy or radiation therapy.

15. – 19. (Cancelled)

20. (Previously presented) A vector comprising the isolated DNA of claim 1.

21. (Previously presented) The vector of claim 20, wherein the nucleic acid sequence is operably linked to a regulatory element which allows expression of said nucleic acid sequence in a cell.

22. (Previously presented) A cultured cell comprising the vector of claim 21.

23. (Previously presented) A method of producing a polypeptide, the method comprising culturing the cell of claim 22 and purifying the polypeptide from the cell.

24. (Previously presented) A vector comprising the isolated nucleic acid of claim 6.

25. (Previously presented) The vector of claim 24, wherein the nucleic acid is operably linked to a regulatory element which allows expression of said nucleic acid in a cell.

26. (Previously presented) A cell comprising the vector of claim 24.

27. (Previously presented) A method of producing a fusion protein, the method comprising culturing the cell of claim 26 and purifying the fusion protein from the cell.

28. (Withdrawn) A method of identifying a compound that inhibits an immune response, the method comprising:

a) providing an isolated polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:18, or the amino acid sequence but with one or more conservative amino acid substitutions;

b) coculturing a T cell, and a macrophage or a monocyte with the isolated polypeptide and the test compounds;

c) determining whether the test compound inhibits spreading of the macrophage or the monocyte, as an indication that the test compound inhibits an immune response.

29. (Withdrawn) A method of identifying a compound that enhances an immune response, the method comprising:

a) providing a test compound;

b) combining the test compound, a T cell, a macrophage or a monocyte, and an isolated polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:18, or the amino acid sequence with one or more conservative substitutions; and

c) determining whether the test compound enhances spreading of the macrophage or the monocyte, as an indication that the test compound inhibits an immune response.

30. (Withdrawn) An antibody that binds to a polypeptide selected from the group consisting of SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:18, but that does not bind to CD26 or to a polypeptide with the sequence of SEQ ID NO:2.

31. (Withdrawn) The antibody of claim 30, wherein the antibody is a single chain variable region fragment (scFv).

32. (Currently amended) A method of treating a mammal in need of an enhanced immune response, the method comprising:

a) providing a recombinant cell which is the progeny of a cell obtained from the mammal and has been transfected or transformed *ex vivo* with a nucleic acid encoding an agent or [[a functional]] an antigenic fragment of the agent so that the cell expresses the agent or [[functional]] antigenic fragment; and

b) administering the cell to the mammal,

wherein the agent is selected from the group consisting of:

(i) an attractin polypeptide comprising ~~an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:10,~~ SEQ ID NO:12~~, and SEQ ID NO:18~~;

(ii) [[a functional]] an antigenic fragment of the attractin polypeptide; and

(iii) the polypeptide or the [[functional]] antigenic fragment, but with one or more conservative amino acid substitutions.

33. (Withdrawn) An isolated functional attractin fragment comprising amino acid residues 31-104 of SEQ ID NO:12 or SEQ ID NO:18.

34. (Withdrawn) An isolated functional attractin fragment comprising amino acid residues 1279-1301 of SEQ ID NO:12.

35. (Withdrawn) The isolated functional attractin fragment of claim 34, comprising amino acid residues 1219-1429 of SEQ ID NO:12.

36. (Withdrawn) An isolated functional attractin fragment comprising amino acid residues 1302-1429 of SEQ ID NO:12.

37. (Withdrawn) The method of claim 12, wherein said human is suspected of having common variable immunodeficiency syndrome.

38. (Previously presented) The DNA of claim 1, wherein the nucleic acid sequence consists of SEQ ID NO:1.

39. (Previously presented) The DNA of claim 1, wherein the nucleic acid sequence consists of SEQ ID NO:11.

40. (Previously presented) The DNA of claim 1, wherein the nucleic acid sequence consists of SEQ ID NO:19.

41. (Previously presented) An isolated DNA comprising:

(a) a nucleic acid sequence that is at least 85% identical to SEQ ID NO:13; or

(b) the complement of the nucleic acid sequence,

wherein the nucleic acid sequence encodes a polypeptide that enhances spreading of a macrophage or a monocyte.

42. (Previously presented) The DNA of claim 41, wherein the nucleic acid sequence is at least 95% identical to a sequence consisting of SEQ ID NO:13.

43. (Previously presented) An isolated DNA comprising:

(a) a nucleic acid sequence that encodes a polypeptide consisting of an amino acid sequence that is at least 85% identical to SEQ ID NO:12; or

(b) the complement of the nucleic acid sequence,

wherein the polypeptide enhances spreading of a macrophage or a monocyte.

44. (Previously presented) The DNA of claim 43, wherein the amino acid sequence is at least 95% identical to SEQ ID NO:12.

45. (Previously presented) The DNA of claim 44, wherein the amino acid sequence is at least 98% identical to SEQ ID NO:12.

46. (Previously presented) The isolated nucleic acid of claim 6, wherein the heterologous sequence comprises a signal peptide, a reporter polypeptide, or an immunoglobulin constant region.

47. (New) An isolated DNA encoding a polypeptide comprising an antigenic fragment of SEQ ID NO:12.

48. (New) The DNA of claim 47, wherein the DNA encodes an antigenic fragment of SEQ ID NO:12.

49. (New) An isolated DNA comprising a sequence that encodes a polypeptide comprising an amino acid sequence consisting of the following segments in contiguous order, starting from the N-terminus of the amino acid sequence:

(a) amino acids 1-30 of SEQ ID NO:12;

(b) (1) none to all of amino acids 31-104 of SEQ ID NO:12 or (2) the segment of (b) (1) but comprising one or more conservative substitutions;

(c) amino acids 105-1267 of SEQ ID NO:12; and

(d) (i) none to all of amino acids 1268-1429 of SEQ ID NO:12 or (ii) the segment of (d) (i) but comprising one or more conservative substitutions,

wherein the polypeptide enhances spreading of a macrophage or a monocyte.

50. (New) The DNA of claim 48, wherein the polypeptide comprises amino acids 31-104 of SEQ ID NO:12.

51. (New) The DNA of claim 48, wherein the polypeptide comprises amino acids 1268-1429 of SEQ ID NO:12.

52. (New) The method of claim 32, wherein the mammal is a human.

53. (New) The method of claim 52, wherein the human is suspected of being immunodeficient.

54. (New) The method of claim 52, wherein the human is suspected of having cancer.

55. (New) The method of claim 54, wherein the method is performed before, during, or after chemotherapy or radiation therapy.

56. (New) The method of claim 53, wherein said human is suspected of having common variable immunodeficiency syndrome.